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Managing Pay for Performance: Aligning Social Science Research with Budget Predictability

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EXECUTIVE SUMMARY

Managers and policymakers are seeking practical guidelines for assessing the outcomes of emerging pay-for-performance (P4P) programs. Evaluations of P4P programs published to date are mixed—some are confusing—and methodological problems with them are common.

This article first identifies and summarizes obstacles to implementing effective P4P programs. Second, it describes results from social science research going back several decades to support evidence-based P4P best practices. Among the findings from this research, the zero-sum and “earn it back” P4P incentive systems have important drawbacks and may be counterproductive, neither reducing health system costs nor improving quality. The research suggests that punishing participants for low performance may further reduce individuals’ performance, especially when involvement is required. We suggest that optimal P4P systems are those that reward all participants for performance improvements. Third, the article links P4P design to budgetary considerations. P4P program designs that provide incentives while improving quality and reducing costs are critical if budget neutrality is a priority for the organization and its resources are limited. In these types of P4P designs, cost calculations are straightforward: The greater the participation, the higher the savings. The article concludes by recommending an evidence-based P4P approach for practitioners that can be implemented without large upfront investment. More research on this topic is also advised.

For more information about the concepts in this article, please contact Dr. Rosenau at Pauline.Rosenau@uth.tmc.edu.

INTRODUCTION

The variety of pay-for-performance (P4P) programs is vast, and practitioners need guidance in determining which types are most successful and where to begin implementing one (Young 2007). According to the Agency for Healthcare Research and Quality (2006), P4P payment systems are designed to “offer financial incentives to physicians and other health care providers to meet defined quality, efficiency, or other targets.” The collective goal of the P4P approaches is to reduce health system costs while improving quality.

P4P incentive systems are having an enormous impact on healthcare delivery in the United States (Epstein 2007). P4P is among the most important developments in the US healthcare sector since managed care and capitation (Kellis and Rumberger 2010). It aims to change the behavior of physicians, patients, and those working in hospitals through a system of rewards and punishments. A P4P reward or bonus for physicians might take the form of a salary add-on to the general fee-for-service. A reward for hospitals might be payments beyond those received through the diagnosis-related group-based scheme. A punishment under the P4P system might mean reduced compensation or some other penalty.

The purpose of this article is to assess and prioritize P4P programs for practitioners. First, we summarize the main obstacles to achieving a successful P4P program. Second, we employ theoretical principles and research findings from behavioral science and business to demonstrate how to improve P4P results. Third, we show the link between

P4P systems and budget predictability. Finally, we recommend to practitioners a viable P4P design that includes evidence-based best practices and does not require a large initial investment.

ISSUES SURROUNDING PAY-FOR-PERFORMANCE IMPLEMENTATION

Results Are Mixed

Taken together, the results of P4P programs in the United States can be characterized at best as mixed and at worst as inconclusive (Peterson et al. 2006; Wodchis, Ross, and Detsky 2007). Some studies outline clear evidence of P4P effectiveness (Abelson 2007; CMS 2008). Others indicate that P4P innovations fail or the results are inconclusive (Glickman et al. 2007; Pearson et al. 2008; Damberg et al. 2009). In short, “pay-for-performance may not, necessarily, have the dramatic and or even predictable effects touted by its enthusiasts” (Mullen, Frank, and Rosenthal 2010). Mixed results have also been reported in other countries (Campbell et al. 2007, 2009; McDonald and Roland 2009).

Methodological Problems Abound

Several reasons explain why results from P4P experiments vary widely, and some of these are related to methodological problems. The samples involved are often very small. Participation in these programs is seldom based on random samples of practitioners or hospitals—it usually involves voluntary participation, leading to selection bias. Changes in performance measured under these P4P programs sometimes coincided with structural changes or operational

reorganization such that any observed change may not be attributable to P4P alone (Golden 2006; Pink et al. 2006). Positive results were sometimes attributable to “secular trends,” whereby researchers mistakenly concluded that P4P improves quality or cost when, in fact, most organizations operating in the healthcare sector were improving, even those in which P4P was not present.

According to some policy experts, P4P is observed to have failed, in part, because incentives are not large enough to change behavior. For example, P4P in the United States has not proved as effective as in Britain, where rewards are far greater—in some cases up to 50 percent of a physician’s salary (Davis 2008; Doran, Fullwood, and Gravelle 2006)—than those in US P4P programs, which are seldom more than 5 percent of a physician’s salary (Advisory Board Company and Foundation 2008). But even in Britain, generous rewards have been found insufficient to improve quality in some cases (Serumaga et al. 2011).

Obstacles Emerge

Common obstacles to the successful use of P4P programs have been identified and are related to both performance and process variables (McDonald and Roland 2009; Hoff et al. 2011). All reimbursement systems encourage manipulation of one sort or another, and P4P is no exception (Galvin et al. 2005; Hamblin 2008; Hayward and Kent 2008). The *Journal of the American Medical Association* has even published a guide explaining how providers can “game” a P4P system (Hayward and Kent 2008). Other troubling aspects include the fact that under P4P incentive systems providers

tend to treat a presenting patient even if the diagnosis is unclear or uncertain (Jauhar 2008) and that when P4P incentives are in place, continuity of care may be reduced (Campbell et al. 2007, 2009). Furthermore, P4P increases the difficulty in treating patients with multiple medical problems (Young et al. 2010). These issues arise primarily because P4P focuses a provider’s attention on the reward, and this diversion may result in oversights in addressing the totality of a patient’s healthcare needs (Campbell et al. 2009).

P4P has been found to increase health disparities among populations in several ways. Most importantly, research suggests that physicians in these programs avoid sicker patients because they perceive those patients as likely to lower their quality scores. Because many members of minority groups have poor health, they tend to fall into the category of patients to be avoided by P4P-participating physicians (Blustein et al. 2011; Casalino et al. 2007b). In addition, many physicians view P4P as intrusive, controlling, and punitive rather than as educational (Giraud-Roufast and Chabot 2008). Among those physicians who do support it, many have little concrete experience with P4P programs (Casalino et al. 2007a).

Another problem for P4P programs involves how to bring them to an end if they are not needed anymore or if funding is no longer available. One classic sociological study found that when workers are being observed, they respond in socially desirable ways; the phenomenon is known as the Hawthorne effect (Mayo 1933). Indeed, tests of the Hawthorne effect in the health

sector find that intensive follow-up of participants in a clinical trial results in better outcomes than does minimal follow-up (McCarney et al. 2007). This finding suggests that caution should be exercised in the decision to allow P4P programs to lapse. One study reports that when providers ceased to be rewarded for their new behavior, they reverted to the old behavior (Lester et al. 2010). Another study found that P4P programs that initially demonstrated improved performance tended to taper off in the fourth and fifth years (Werner et al. 2011).

APPLYING BEHAVIORAL AND SOCIAL SCIENCE TO PAY FOR PERFORMANCE

Research results from behavioral science regarding individual behavior and system-level characteristics are not always explicitly incorporated into P4P systems (Mehrotra, Sorbero, and Damberg 2010). Too often P4P design is grounded in intuition and untested assumptions (Meltzer 2009). Here we present social science and behavioral science findings and point to their practical implications for P4P design. (See Exhibit 1.) Of course, such applications are no guarantee of success, no matter how logical and rational, because they have yet to be tested.

Social science research suggests that incentives should be both linked to a specific time frame and proximate to the desired behavior. The opportune moment to reward an individual for a specific behavior is immediately after that behavior is elicited (O'Daly and Fantino 2003). Furthermore, "People place more weight on the present than

the future—they're more attracted by immediate than delayed benefits" (Volpp et al. 2011). Therefore, if the time span between the receipt of the reward or penalty and the financial effects on the individual or organization are large, as is usually the case with P4P programs, the impact is reduced (Volpp et al. 2011).

P4P programs should target for reward those individuals or entities whose behavior you wish to change, such as a group, an individual physician, a hospital, or a patient. However, P4P programs typically are not structured to do so. For example, they reward a physician if his or her patients reduce tobacco use, lower cholesterol levels, comply with orders to take medication, or lose weight. In these cases the incentive is "distant" rather than proximate to the behavioral change. Rewarding those who successfully change their lifestyle and medication compliance is more in agreement with behavioral research (Volpp et al. 2009; Wharam and Sulmasy 2009). In fact, because even small financial incentives change patient behavior, rewarding the patients rather than the physicians may be effective (Oliver and Brown 2011).

The most successful incentive structures match an individual's values and goals. Equally important to success is that P4P programs be aligned with an individual's personality (Hamblin 2008). A provider that is motivated by self-interest might be open to P4P formats that are less than altruistic in their approach. Research suggests that in the general population about 50 percent of the population is altruistic, one-third is self-interested, and the rest exhibit a mix of these characteristics (Camerer

EXHIBIT 1

Findings from Behavioral Science and Business Relevant to Pay for Performance

Question	Finding	Application	Relevance for P4P	Reference
When to reward?	Reward should be time-linked to desired behavior	Reward is immediate	Internet reporting of performance with immediate update and accessibility	O'Daly and Fantino (2003); Volpp et al. (2011)
How to structure rewards?	Carrot works better than stick for many	Provide incentives for the positive rather than disincentives for the negative	Reward best practice	Workie (1974)
Can the stakes be too high?	High levels increase stress, fatigue, errors, aggression, and obstructive behavior	Moderate the interindividual and interinstitutional competition	Demands should be realistic and attainable	Leape (1994); McCaul, Gladue, and Joppa (1992); Blake and Mouton (1986); Pepitone (1980); Hare et al. (1994)
Should personality and incentive structure be aligned?	<ol style="list-style-type: none"> 1. Cooperative leadership style outperforms competitive leader 2. Cooperative production is more production 3. The links between personality, competition, and social outcomes vary for individual 	<ol style="list-style-type: none"> 1. Train for cooperative leadership 2. Assess organization culture and modal personality style 3. Consider individual motivation to be open-ended, with high variation within populations 	<p>Flexible design and open leadership approach adapted to the organizational and individual situation as much as possible</p>	<p>Hamblin (2008); Johnson and Johnson (1983); Tjosvold and Andrews (1983); Gordon et al. (2000); Camerer and Fehr (2006); Rosenau (2006); Robbins and Judge (2007)</p>
Do values and goals matter?	The most effective incentive structures are matched to an individual's values and goals	Measure values and goals before implementing new policies	Avoid mismatch of individual/organization values and goals to reward structures	Johnson and Johnson (1989); Qin, Johnson, and Johnson (1995); Cosier and Dalton (1988); Steinmetz (1983)

and Fehr 2006; Rosenau 2006). Some personality types respond to one form of reward to a greater degree than to others. For example, in the health sector some physicians are likely to respond to P4P programs that are linked to the ethic of providing healthcare to the whole population rather than to personal financial incentives (Christianson, Leatherman, and Sutherland 2008).

Social science research points to the possibility that nonfinancial P4P rewards are often overlooked, though they may be highly effective for many individuals. For those attracted to their field because of the intrinsic value they derive from it, nonmonetary rewards could be optimal because such rewards fit their values (Strack and Deutsch 2004; Randolph 2005). In line with this expectation, a recent study found that a number of doctors left a hospital after a P4P program was implemented whose incentives were financially based (Golden and Sloan 2008). P4P is also said to crowd out individual initiative and discourage efforts to improve quality in situations where monetary gain is seen as substituting for professional and personal pride in performance. In some cases, emphasizing monetary P4P incentive systems may even be counterproductive (Ryan and Deci 2000). Increased pay has been reported to reduce physicians' commitment to their hospital (Dukerich, Golden, and Shortell 2002; Wynia 2009), though this effect is not always observed (Young et al. 2010). In short, once a minimum level of extrinsic reward (financial) is reached, intrinsic rewards (values) may become the primary motivation factor (Pfeffer et al. 1998).

Other examples of effective non-monetary incentives or motivators involve public recognition, participation, praise, and an understanding that they (individuals or institutions) are "doing good" (Robbins and Judge 2007). The opportunity for more challenging work is an additional nonfinancial motivator (Dukerich, Golden, and Shortell 2002; Golden 2006). Motivation may differ from individual to individual (Steinmetz 1983). However, applying different P4P formats to various individuals in an organization may be difficult to implement in the real world.

For decades social scientists have studied how best to motivate the individual in the workplace. Several theories of motivation from different disciplines are relevant to P4P design, among them the field theory (Lewin 1943), goal theory (Locke and Latham 1990), expectancy theory (Vroom 1964), and hierarchy of needs theory (Maslow 1943). Not all are evidence based. Some have been modified to improve their ability to structure motivation, and these are the most useful for P4P design. Alderfer's (1969) work on Maslow's hierarchy of needs theory is an example. In the end, P4P design implicitly asks the question, "Are incentives best structured as rewards or as punishments, or both?" Almost forgotten are the studies indicating that, on balance, a positive reward is as effective as or more effective than a negative incentive (Workie 1974). Positive motivation, including increased workplace opportunities, is more effective than instilling fear or making threats (Steinmetz 1983). Experiments in the field of education confirm this

finding (Johnson and Johnson 1983). Another study that can be applied to P4P programs reports that for many individuals, workplace practices that require interindividual cooperation are associated with higher productivity than those employing competition between individuals in the organization (Cosier and Dalton 1988; Lam et al. 2011).

P4P designs should incorporate findings from research on the effects of various forms of competition, on transparency, and on innovation. Competition internal to an organization is detrimental to attaining organizational goals, and it reduces individual and group performance (Rosenau 2003, Chapter 3). An absence of P4P contractual transparency can increase competition internal to a program, which indirectly reduces productivity (Thompson et al. 2002). Restrictive P4P confidentiality contracts may reduce collaboration and efficacy. Finally, some evidence suggests that excessive competition in P4P programs could discourage innovation (Jauhar 2008).

Social science research predicts that zero-sum P4P designs that reward some individuals or groups at the expense of others have the potential to disrupt organizational performance and reduce overall individual and organizational achievement. Those forms of P4P involving zero-sum competition take money from participants who do not meet P4P reward criteria and give it to those who do meet the criteria (Exhibit 2). This type of competition polarizes an organization and divides the individuals who work there into winners and losers (Kelly 2010). Those at the low-performing end of the continuum may become

discouraged, reduce their effort, and even give up trying to reach the level of performance required to merit a reward (Himmelberg, Hubbard, and Palia 1999; Vaughan 1999). If social science research is accurate, these P4P designs are likely to increase stress, fatigue, aggression, and obstructive behavior (Hare et al. 1994; Stanne, Johnson, and Johnson 1999). In addition, they may reduce the self-esteem of some workers (Meyer 1975), lower safety performance, and reduce workplace morale (FitzRoy, Acs, and Gerlowski 1998).

Does this form of P4P lead to competition that subsequently reduces performance for those receiving a penalty? Research indicates that this problem may not arise in P4P programs where participation is voluntary (Chen et al. 2010). Conversely, decades of behavioral research across many sectors suggests the opposite is likely to be true where participation is not voluntary.

A similar form of P4P reduces the base compensation for all individuals, or base reimbursement for the organization, with an explicit "earn it back" strategy. Only those who meet the P4P standard will receive the same pay as before the program was initiated. The effects discussed earlier resulting from zero-sum P4P may apply to this P4P design as well.

P4P designs that take from the lowest performers to reward the highest performers and those that reduce the base and require that individuals earn back any compensation lost to the program have one important advantage over others that makes them extremely attractive to managers: They are budget neutral and thus permit budget predictability.

The amount needed to finance these forms of P4P can be anticipated in advance and entered into the organization's annual budget with known fiscal consequences. This advantage holds for all forms of P4P in which the amount of the reward comes from the penalty payments assessed to those who do not perform up to expectations. Yet better methods are available to achieve the goal of budget neutrality without employing a zero-sum P4P that has substantial negative externalities.

THE IDEAL P4P

Social science research supports P4P program designs that set a standard for excellence and offer a reward for all who attain this level of performance. In such a design, all who meet the standard are rewarded, and none are punished for not meeting the standard. This P4P strategy reduces the level of stress and anxiety associated with zero-sum incentive systems. The downside is that it is difficult to budget for because one never knows in advance how many individuals will perform to the standard required to be rewarded. Resources are limited, and provider/player uptake, or involvement, is hard to predict. If uptake is great, huge budget overruns may result, raising a dilemma: How can a P4P program be structured to avoid the downside of zero-sum systems and yet result in limited budgetary consequences?

Budgeting for Optimal P4P Systems

Achieving budget neutrality or budget predictability is vital for P4P programs. Some of the largest and most well-known P4P programs in the United

States are optimal in that they are budget neutral, but they may not be ideal because they have the externalities outlined earlier. For example, as indicated in Exhibit 2, zero-sum P4P strategies are employed by Medicare and the Veterans Health Administration. Typically these programs offer 10 percent bonuses to the top 10 percent of performers and impose a financial penalty of 10 percent reductions in pay to the bottom 10 percent of performers (Burton 2011). By definition these approaches are budget neutral.

Some P4P structures can be optimal in the larger sense in that existing social research supports them and they are also budget neutral. They create an alignment between provider behavior change and the organizations' need for budget predictability or budget neutrality. *These P4P programs place success and rewards within reach of all participants and at the same time achieve the desired performance criteria that result in a cost savings to the system as a whole.* This relationship is outlined in Exhibit 3. The greater the uptake, the larger are the realized savings. In other words, the more "winners" that result from this type of P4P, the more savings accrue to the organization. "The more you buy, the more you save" may not be possible to fulfill in every situation, but where it is, this form of P4P is optimal.

A real-world example is that of a P4P program offered by Highmark, a Pennsylvania-based health insurance plan, that targeted physician prescribing behavior for improvement. Primary care physicians were rewarded a bonus of \$3.00 to \$9.00 for every fee-for-service patient for which they wrote a

EXHIBIT 2
P4P Systems That Are Budget Neutral but Not Optimal

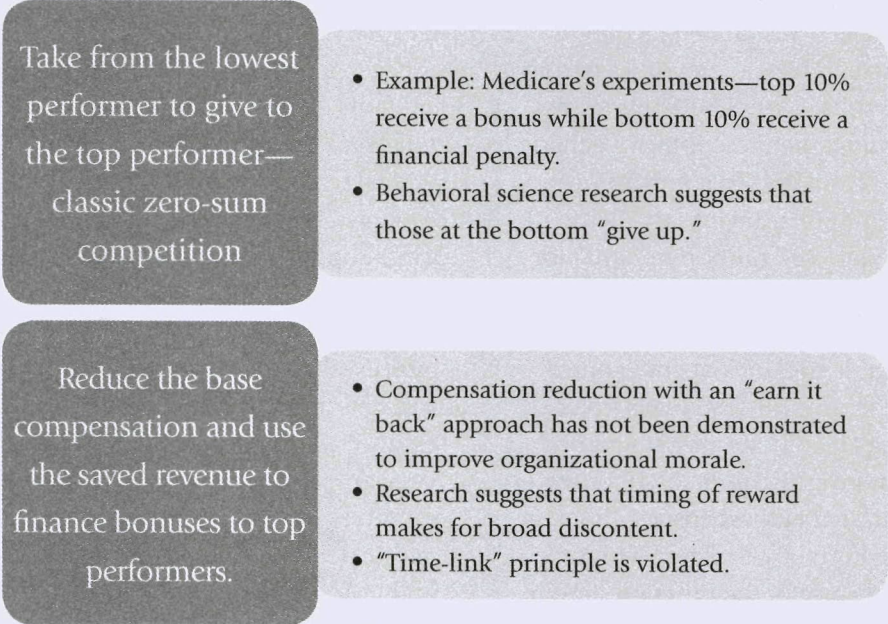
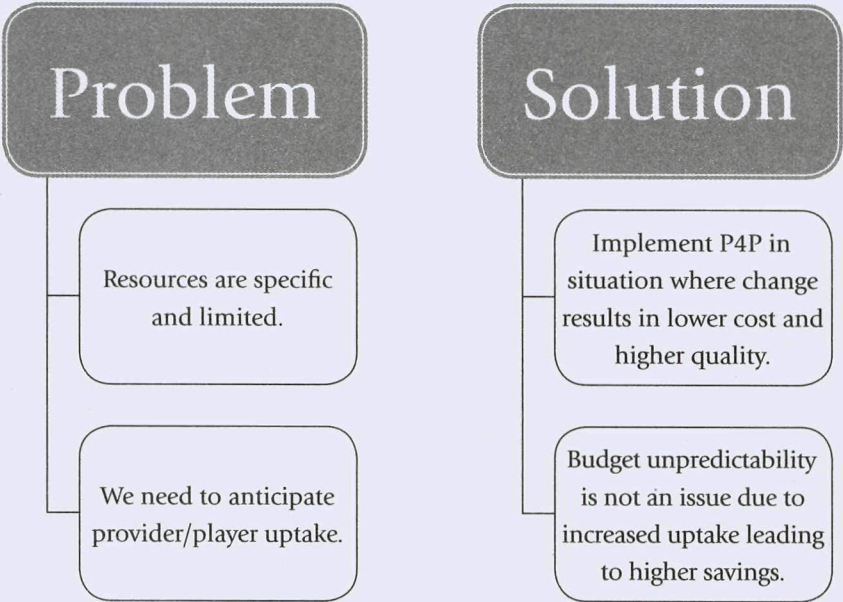


EXHIBIT 3
Solutions to P4P Problems



prescription for a generic rather than a brand name medication. While many such private P4P incentive systems are considered proprietary, Highmark has publicized and shared its program design, structure, and outcomes performance results. With 5,000 physicians participating, the prescribing of generics increased from 46 percent to 73 percent in four years. Savings to Highmark amounted to \$87 million in 2010 alone (Diamond 2010).

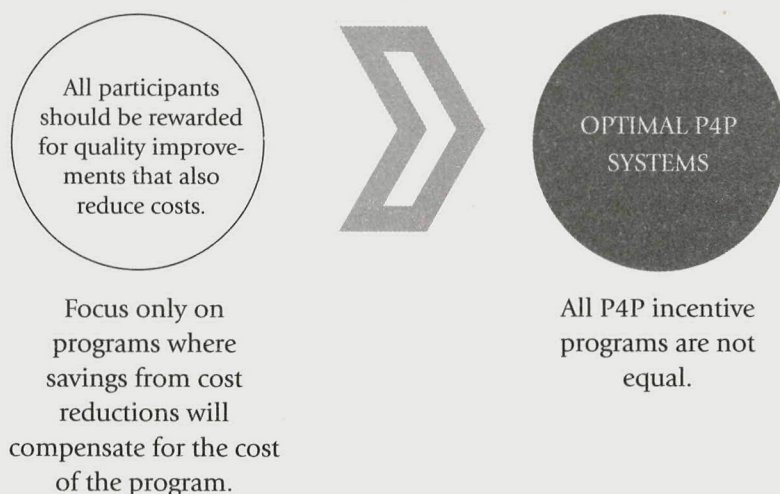
Managers and their organizations must be able to anticipate how much a P4P program will cost. In general, obtaining an accurate assessment of return on investment for a P4P program is complicated and expensive—in many cases it cannot be calculated with precision in advance of the program's implementation (Curtin et al. 2006). This consideration strengthens the appeal of the optimal P4P programs described in this article.

CONCLUSION

P4P is a blunt instrument whose implementation is made more complicated by the unexpected consequences outlined here. P4P has advantages as well as disadvantages, and they need to be consciously and fairly assessed by managers and policymakers. No P4P program can guarantee success, but if the accumulated evidence of behavioral research is applied to their design, optimal P4P systems should permit all participants to be rewarded for quality improvements *that also reduce costs* (Exhibit 4). From this research we have determined that if carefully chosen and structured appropriately, the cost of pay-for-performance programs can be recovered at the same time that unexpected and expensive externalities can be avoided. Further investigation and research should be a priority to determine if this approach is as effective as we expect in the real world of healthcare environments.

EXHIBIT 4

Putting Knowledge into Practice



REFERENCES

- Abelson, R. 2007. "Bonus Pay by Medicare Lifts Quality." *The New York Times*, January 25.
- Advisory Board Company and Foundation. 2008. Experts Testifying Before Senate Panel Extol Incentives, Standardization as Means to Improve Quality of Care. *Medical News Today*, September.
- Agency for Healthcare Research and Quality (AHRQ). 2006. Pay for Performance (P4P): AHRQ Resources. AHRQ. Published in March. www.ahrq.gov/qual/pay4per.htm.
- Alderfer, C. P. 1969. "An Empirical Test of a New Theory of Human Needs." *Organizational Behavior and Human Performance* 4: 142–75.
- Blake, R. R., and J. S. Mouton. 1986. "From Theory to Practice in Intergroup Problem Solving." In S. Worchel and W. G. Austin (Eds.), *Psychology of Intergroup Relations*. Chicago: Nelson-Hall.
- Blustein, J., J. S. Weissman, A. M. Ryan, T. Doran, and R. Hasnain-Wynia. 2011. "Analysis Raises Questions on Whether Pay-for-Performance in Medicaid Can Efficiently Reduce Racial and Ethnic Disparities." *Health Affairs (Millwood)* 30 (6): 1165–75.
- Burton, T. M. 2011. "Data Spur Changes in VA Care." *Wall Street Journal*, March 29, D4.
- Camerer, C., and E. Fehr. 2006. "When Does 'Economic Man' Dominate Social Behavior?" *Science* 311: 47–52.
- Campbell, S., D. Reeves, E. Kontopantelis, E. Middleton, B. Sibbald, and M. Roland. 2007. "Quality of Primary Care in England with the Introduction of Pay-for-Performance." *New England Journal of Medicine* 357 (2): 181–90.
- Campbell, S., D. Reeves, E. Kontopantelis, B. Sibbald, and M. Roland. 2009. "Effects of Pay-for-Performance on the Quality of Primary Care in England." *New England Journal of Medicine* 361 (4): 368–78.
- Casalino, L. P., G. C. Alexander, L. Jin, and R. T. Konetzka. 2007a. "General Internists' Views on Pay-for-Performance and Public Reporting of Quality Scores: A National Survey." *Health Affairs (Millwood)* 26 (2): 492–99.
- Casalino, L. P., A. Elster, A. Eisenberg, E. Lewis, J. Montgomery, and D. Ramos. 2007b. "Will Pay-for-Performance and Quality Reporting Affect Health Care Disparities?" *Health Affairs* 26 (3): 405–14.
- Centers for Medicare & Medicaid Services (CMS). 2008. "Medicare Physician Group Practice Demonstration: Physicians Groups Continue to Improve Quality and Generate Savings Under Medicare Physician Pay for Performance Demonstration." In *Department of Health and Human Services*, 8. Baltimore, MD: CMS.
- Chen, J. Y., N. Kang, D. T. Juarez, K. A. Hodges, R. S. Chung, and A. P. Legorreta. 2010. "Impact of a Pay-for-Performance Program on Low Performing Physicians." *Journal of Healthcare Quality* 32 (1): 13–21; quiz 21.
- Christianson, J., S. Leatherman, and K. Sutherland. 2008. "Lessons from Evaluations of Purchaser Pay-for-Performance." *Medical Care Research and Review* 65 (6, Suppl.): 5–35.
- Cosier, R. A., and D. R. Dalton. 1988. "Competition and Cooperation: Effects of Value Dissensus and Predisposition to Help." *Human Relations* 41 (11): 823–39.
- Curtin, K., H. Beckman, G. Pankow, Y. Milillo, and R. A. Green. 2006. "Return on Investment in Pay for Performance: A Diabetes Case Study." *Journal of Healthcare Management* 51 (6): 365–74; discussion 375–76.
- Damberg, C., R. Kristiana, S. Teleki, and E. de la Cruz. 2009. "Taking Stock of Pay-for-Performance: A Candid Assessment from the Front Lines." *Health Affairs* 28 (2): 517–25.
- Davis, K. 2008. "Slowing the Growth of Health Care Costs—Learning from International Experience." *New England Journal of Medicine* 359 (17): 1751–55.
- Diamond, F. 2010. "Highmark's P4P Program Uses 2 Different Approaches." *Managed Care Magazine*. December.
- Doran, T., C. Fullwood, and H. Gravelle. 2006. "Pay-for-Performance Programs in Family Practices in the United Kingdom." *New England Journal of Medicine* 355: 371–84.
- Dukerich, J. M., B. R. Golden, and S. M. Shortell. 2002. "Is Beauty in the Eyes of the Beholder? Predicting Organizational Identification and Its Consequences Using Identity and Image." *Administrative Science Quarterly* 47: 507–33.
- Epstein, A. 2007. "Pay for Performance at the Tipping Point." *New England Journal of Medicine* 356 (5): 515–18.
- FitzRoy, F. R., Z. J. Acs, and D. A. Gerlowski. 1998. *Management and Economics of Organization*. London: Prentice Hall Europe.

- Galvin, R. S., S. Delbanco, A. Milstein, and G. Belden. 2005. "Has the Leapfrog Group Had an Impact on the Health Care Market?" *Health Affairs* 24 (1): 228–33.
- Giraud-Roufast, A., and J. M. Chabot. 2008. "Medical Acceptance of Quality Assurance in Health Care." *Journal of the American Medical Association* 300 (22): 2663–65.
- Glickman, S. W., F. S. Ou, E. R. DeLong, M. T. Roe, B. L. Lytle, J. Muglung, J. S. Rumsfeld, W. B. Gibler, E. M. Ohman, K. A. Schulman, and E. D. Peterson. 2007. "Pay for Performance, Quality of Care, and Outcomes in Acute Myocardial Infarction." *Journal of the American Medical Association* 297 (21): 2373–80.
- Golden, B. R. 2006. "The Cost of Pay-for-Performance in Healthcare; an Alternative View." *Healthcare Papers* 6 (4): 39–46.
- Golden, B. R., and F. A. Sloan. 2008. "Physician Pay for Performance." In *Incentives and Choice in Health Care*, 289–318. Boston: MIT Press.
- Gordon, F. M., K. R. Welch, G. Offringa, and N. Katz. 2000. "The Complexity of Social Outcomes from Cooperative, Competitive, and Individualistic Reward Systems." *Social Justice Research* 13 (3): 237–69.
- Hamblin, R. 2008. "Regulation, Measurements and Incentives. The Experience in the US and UK: Does Context Matter?" *Perspectives in Public Health* 128 (6): 291–98.
- Hare, A. P., H. H. Blumberg, M. F. Davies, and M. V. Kent. 1994. *Small Group Research: A Handbook*. Norwood, NJ: Ablex.
- Hayward, R. A., and D. M. Kent. 2008. "6 EZ Steps to Improving Your Performance (or How to Make P4P Pay 4U!)." *Journal of the American Medical Association* 300 (3): 255–56.
- Himmelberg, C. P., R. G. Hubbard, and D. Palia. 1999. "Understanding the Determinants of Managerial Ownership and the Link Between Ownership and Performance." *Journal of Financial Economics* 53 (3): 353–84.
- Hoff, T., C. W. Hartmann, C. Soerensen, P. Wroe, M. Dutta-Linn, and C. Lee. 2011. "Making the CMS Payment Policy for Healthcare-Associated Infections Work: Organizational Factors That Matter." *Journal of Healthcare Management* 56 (5): 319–35.
- Jauhar, S. 2008. "The Pitfalls of Linking Doctors' Pay to Performance." *The New York Times*, September 9.
- Johnson, D. W., and R. T. Johnson. 1989. *Cooperation and Competition: Theory and Research*. Edina, MN: Interaction Book Company.
- Johnson, R. T., and D. W. Johnson. 1983. "Effects of Cooperative, Competitive, and Individualistic Learning Experiences on Social Development." *Exceptional Children* 49 (4): 323–29.
- Kellis, D. S., and J. S. Rumberger. 2010. "Healthcare Reform and the Hospital Industry: What Can We Expect?" *Journal of Healthcare Management* 55 (4): 283–96; discussion 296–97.
- Kelly, K. 2010. "The Effect of Incentives on Information Exchange and Decision Quality in Groups." *Behavioral Research in Accounting* 22 (1): 43–65.
- Lam, C. K., G. S. van der Vegt, F. Walter, and X. Huang. 2011. "Harming High Performers: A Social Comparison Perspective on Interpersonal Harming in Work Teams." *Journal of Applied Psychology* 96 (3): 588–601.
- Leape, L. L. 1994. "Error in Medicine." *Journal of the American Medical Association* 272 (23): 1851–57.
- Lester, H., J. Schmittiel, J. Selby, B. Fireman, S. Campbell, J. Lee, A. Whippy, and P. Madvig. 2010. "The Impact of Removing Financial Incentives from Clinical Quality Indicators: Longitudinal Analysis of Four Kaiser Permanente Indicators." *British Medical Journal* 340: c1898.
- Lewin K. 1943. "Defining the 'Field at a Given Time.'" *Psychological Review* 50: 292–310.
- Locke, E. A., and G. P. Latham. 1990. *A Theory of Goal Setting and Task Performance*. Englewood Cliffs, NJ: Prentice-Hall.
- Maslow, A. H. 1943. "A Theory of Human Motivation." *Psychological Review* 50 (4): 370–96.
- Mayo, E. 1933. *The Human Problems of an Industrial Civilization*. Cambridge, MA: Harvard University Press.
- McCaul, K. D., B. A. Gladue, and M. Joppa. 1992. "Winning, Losing, Mood, and Testosterone." *Hormones & Behavior* 26: 486–504.
- McCarney, R., J. Warner, S. Iliffe, R. van Haselen, M. Griffin, and P. Fisher. 2007. "The Hawthorne Effect: A Randomised, Controlled Trial." *BMC Medical Research Methodology* 7: 30.
- McDonald, R., and M. Roland. 2009. "Pay for Performance in Primary Care in England

- and California: Comparison of Unintended Consequences." *Annals of Family Medicine* 7 (2): 121–27.
- Mehrotra, A., M. E. Sorbero, and C. L. Damberg. 2010. "Using the Lessons of Behavioral Economics to Design More Effective Pay-for-Performance Programs." *American Journal of Managed Care* 16 (7): 497–503.
- Meltzer, D. O. 2009. "Social Science Insights into Improving Workforce Effectiveness: Examples from the Developing Field of Hospital Medicine." *Journal of Public Health Management and Practice* 15 (6, Suppl.): S18–S23.
- Meyer, H. 1975. "The Pay-for-Performance Dilemma." *Organizational Dynamics* 3 (3): 39–50.
- Mullen, K. J., R. G. Frank, and M. B. Rosenthal. 2010. "Can You Get What You Pay For? Pay-for-Performance and the Quality of Healthcare Providers." *RAND Journal of Economics* 41 (1): 64–91.
- O'Daly, M., and E. Fantino. 2003. "Delay Reduction Theory." *The Behavior Analyst Today* 4 (2): 141–55.
- Oliver, A., and L. D. Brown. 2011. "Incentivizing Professionals and Patients: A Consideration in the Context of the United Kingdom and the United States." *Journal of Health Politics, Policy and Law* 36 (1): 59–87.
- Pearson, S. D., E. C. Schneider, K. P. Kleinman, K. L. Coltin, and J. A. Singer. 2008. "The Impact of Pay-for-Performance on Health Care Quality in Massachusetts, 2001–2003." *Health Affairs* 27 (4): 1167–76.
- Pepitone, E. A. 1980. *Children in Cooperation and Competition: Toward a Developmental Social Psychology*. Lexington, MA: Lexington Books.
- Peterson, L. A., L. D. Woodard, T. Urech, C. Daw, and S. Sookanan. 2006. "Does Pay-for-Performance Improve Quality of Health Care?" *Annals of Internal Medicine* 145 (4): 265–72.
- Pfeffer, J., R. B. Cialdini, B. Hanna, and K. Knopoff. 1998. "Faith in Supervision and the Self-Enhancement Bias: Two Psychological Reasons Why Managers Don't Empower Workers." *Basic & Applied Social Psychology* 20 (4): 313–21.
- Pink, G. H., A. D. Brown, M. L. Studer, K. L. Reiter, and P. Leatt. 2006. "Pay-for-Performance in Publicly Financed Healthcare: Some International Experience and Consideration for Canada." *Healthcare Papers* 6 (4): 8–26.
- Qin, Z., D. W. Johnson, and R. T. Johnson. 1995. "Cooperative Versus Competitive Efforts and Problem Solving." *Review of Educational Research* 65 (2): 129–43.
- Randolph, D. S. 2005. "Predicting the Effect of Extrinsic and Intrinsic Job Satisfaction Factors on Recruitment and Retention of Rehabilitation Professionals." *Journal of Healthcare Management* 50 (1): 49–60; discussion 60.
- Robbins, P., and T. A. Judge. 2007. *Essentials of Organizational Behavior*, 9th ed. Upper Saddle River, NJ: Prentice-Hall.
- Rosenau, P. 2006. "Is Economic Theory Wrong About Human Nature?" *Journal of Economic and Social Policy* 10 (2): 61–78.
- . 2003. *The Competition Paradigm: America's Romance with Conflict, Contest, and Commerce*. Lanham, MD: Rowman & Littlefield.
- Ryan, R. M., and E. L. Deci. 2000. "Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being." *American Psychology* 55 (1): 68–78.
- Serumaga, B., D. Ross-Degnan, A. J. Avery, R. A. Elliott, S. R. Majumdar, F. Zhang, and S. B. Soumerai. 2011. "Effect of Pay for Performance on the Management and Outcomes of Hypertension in the United Kingdom: Interrupted Time Series Study." *British Medical Journal* 342: d108.
- Stanne, M. B., D. W. Johnson, and R. T. Johnson. 1999. "Does Competition Enhance or Inhibit Motor Performance: A Meta-analysis." *Psychological Bulletin* 125 (1): 133–54.
- Steinmetz, L. 1983. *Nice Guys Finish Last: Management Myths and Reality*. Boulder, CO: Horizon.
- Strack, F., and R. Deutsch. 2004. "Reflective and Impulsive Determinants of Social Behavior." *Personality and Social Psychology Review* 8 (1): 220–47.
- Thompson, D., R. Socolar, L. Brown, and J. Haggerty. 2002. "Interagency Collaboration in Seven North Carolina Counties." *Journal of Public Health Management and Practice* 8 (5): 55–64.
- Tjosvold, D., and R. Andrews. 1983. "Cooperative and Competitive Relationships Between Leaders and Subordinates." *Human Relations* 36 (12): 1111–24.

- Vaughan, D. 1999. "The Dark Side of Organizations: Mistake, Misconduct, and Disaster." *Annual Review of Sociology* 25: 271–305.
- Volpp, K. G., D. A. Asch, R. Galvin, and G. Loewenstein. 2011. "Redesigning Employee Health Incentives—Lessons from Behavioral Economics." *New England Journal of Medicine* 365 (5): 388–90.
- Volpp, K. G., M. V. Pauly, G. Loewenstein, and D. Bangsberg. 2009. "P4P4P: An Agenda for Research on Pay-For-Performance for Patients." *Health Affairs* 28 (1): 206–14.
- Vroom, V. H. (1964). *Work and Motivation*. New York: Wiley.
- Werner, R. M., J. T. Kolstad, E. A. Stuart, and D. Polsky. 2011. "The Effect of Pay-for-Performance in Hospitals: Lessons for Quality Improvement." *Health Affairs* 30 (4): 690–98.
- Wharam, J. F., and D. Sulmasy. 2009. "Improving the Quality of Health Care: Who Is Responsible for What?" *Journal of the American Medical Association* 301 (2): 215–17.
- Wodchis, W. P., J. S. Ross, and A. S. Detsky. 2007. "Is P4P Really FFS?" *Journal of the American Medical Association* 298 (15): 1797–99.
- Workie, A. 1974. "The Relative Productivity of Cooperation and Competition." *Journal of Social Psychology* 92: 225–30.
- Wynia, M. K. 2009. "The Risks of Rewards in Health Care: How Pay-for-Performance Could Threaten, or Bolster, Medical Professionalism." *Journal of General Internal Medicine* 24 (7): 884–87.
- Young, G. J. 2007. "Practical Issues in the Design and Implementation of Pay-for-Quality Programs." *Journal of Healthcare Management* 52 (1): 10–15.
- Young, G., M. Meterko, B. White, K. Sautter, B. Bokhour, E. Baker, and J. Silver. 2010. "Pay-for-Performance in Safety Net Settings: Issues, Opportunities, and Challenges for the Future." *Journal of Healthcare Management* 55 (2): 132–42.

PRACTITIONER APPLICATION

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The authors present a comprehensive evaluation of pay-for-performance (P4P) programs as they align with issues of effectiveness, social science interrelationships, and budgetary considerations. They provide timely lessons that can be leveraged within today's healthcare transformation to accountable care. I propose that transformation can take place within a pay for *outcomes* (P4O) framework, which "would adjust payments on the basis of a hospital's relative performance on outcomes rather than processes . . . with initial focus on those outcomes for which a quality failure results in an increase in payment" (Averill, Hughes, and Goldfield 2011). In this model, hospitals are not required to adopt specific care processes to achieve the P4O standards. Their success is predicated on improved quality and access for a defined population of patients and on cost containment as part of an organized team of multiple healthcare providers across the continuum of care (Averill, Hughes, and Goldfield 2011).

POPULATION HEALTH, ANALYTICS, AND OUTCOMES

Before discussing my view of a P4O approach to healthcare transformation, I describe the factors that allow P4O to function in this capacity.